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October 7, 1993

Mr. Raymond E. Ramos
Department of the Navy
Western Division
Naval Facilities Engineering Command
900 Commodore Way, Building 101
San Bruno, CA 94066-2402

CLEAN Contract No. N62474-88-D-5086
Contract Task Order No. 155
Naval Station Treasure Island
Hunters Point Annex
San Francisco, CA

Re: Minutes for Technical Meeting Summary
July 7, 1993

Dear Mr. Ramos:

We are enclosing one copy of the minutes for Hunters Point Annex (HPA) Radiation Technical Meeting held on July 7, 1993. Distribution has been made to all attendees and regulatory agencies.

Should you have any questions do not hesitate to contact me at (415) 543-4880.

Sincerely,

A handwritten signature in dark ink, appearing to read "D.W. Preston", is written over a horizontal line.

David W. Preston
Assistant Project Manager

DWP:kk

Enclosure

DISTRIBUTION:

U.S. Environmental Protection Agency (Attn: Roberta Blank) (w/2 cys of encl)
U.S. Environmental Protection Agency (Attn: Steve Dean)
California Department of Toxic Substances Control (Attn: Cyrus Shabahari) (w/2 cys of encl)
California Regional Water Quality Control Board (Attn: Dr. Barbara M. Smith)
National Oceanic and Atmospheric Administration (Attn: Denise Klimas)
U. S. Department of Interior (Attn: William Allen)
U.S. Fish & Wildlife Service (Attn: James Haas)
Agency for Toxic Substances and Disease Registry (Attn: Joan Davis)
California Department of Fish and Game (Attn: Michael Martin)
Bay Area Air Quality Management District (Attn: Catherine Fortney)
Bay Conservation and Development Commission (Attn: Nancy Wakeman)
City and County of San Francisco (Attn: Amy Brownell)
San Francisco District Attorney (Attn: Steve Castleman)
TAG Recipient (Attn: Dr. Welbone)
NAVSTA Treasure Island (Attn: Jim Sullivan) (w/2 cys of encl)
COMNAVBASE S.F. (Attn: Randy Friedman)
WESTDIV (Attn: Michael McClelland)
Radiological Affairs Support Office (Attn: Cdr. Michael Knight)
Radiological Affairs Support Office (Attn: Mr. Troy Blanton)
Radiological Affairs Support Office (Attn: Dick Lowman)
Naval Hospital, Oak Knoll (Attn: G. M. Gorsuch)
Department of Health Services (Attn: Fil Fong)
Department of Health Services (Attn: Steve Book)

cc: Gary Welshans (W/Attachment)
Emir Utush (W/Attachment)

HPA RADIATION TECHNICAL MEETING MINUTES
JULY 7, 1993

Attendees: Filbert Fong, California Department of Health Services (DHS)
Steve Dean, U.S. Environmental Protection Agency (EPA)
Mike McClelland, U.S. Navy (WESTDIV)
David Martinez, PRC Environmental Management Inc., (PRC)
David Preston, PRC

1. Radiation Issues for Parcel A

Building 816

The Building 816 investigation of tritium in soils and paving materials draft report will be completed and submitted to Mr. Mike McClelland of WESTDIV, for Navy review by July 9, 1993. The Building 816 report was to have been an appendix to the Parcel A report. Because the Parcel A report delivery date has been set back, the Building 816 report will be sent to the Navy separately so that DHS review will not be delayed.

Mr. Filbert Fong of DHS wants to review the Building 816 report for analytical results concerning tritium in soils and paving materials, before DHS performs confirmation sampling at the site.

Building 821

PRC surveyed Building 821, a former Naval Defense Radiological Laboratory (NRDL) X-ray facility, using a pressurized ion chamber, gamma exposure meter. Gamma exposure measurements taken inside the building were not above normally expected background levels.

2. Radiation Remedial Action Issues at Landfills

Mr. Steve Dean of U.S. EPA is waiting for a response from EPA National Atmospheric and Radiation Environmental Laboratory (NAREL) regarding the three soil samples collected in the Bay Fill Area (IR-02). The soils were collected in support of an EPA proposed pilot project to remove radium-containing materials from the landfills at HPA. The Volume Reduction Chemical Extraction (VORCE) technology has been successfully used by EPA at two locations that were contaminated with diffuse byproducts of radium extraction processes.

NAREL has proposed a three-phased approach to the VORCE pilot study. Phase I, which is currently in process, is a bench study that will determine what grain size or soil fraction is associated with the radium-226 (²²⁶Ra) present in the landfill. Phase II will consist of a site visit to HPA by NAREL personnel who will hand screen soils to evaluate the feasibility of in situ separation. Phase III is the actual on-site pilot study. During this Phase, the VORCE equipment will be sent from NAREL in Montgomery, Alabama, to HPA, and soils will be processed. Phase III will proceed only

if Phase I and Phase II provide results that suggest that the VORCE technology is applicable or appropriate for the HPA site.

Steve Dean said that the results of Phase I bench studies are pending and will probably be available within the next 2 weeks.

Mike McClelland asked Steve Dean how Phase II will be funded. Mr. Dean replied that he may have funds in his travel budget to cover the NAREL site visit to HPA during Phase II scheduled for August of 1993.

PRC inquired how the VORCE technology that NAREL proposes to use to remove point source ^{226}Ra contamination is applicable at HPA. The following questions were posed to EPA and DHS:

- Since the VORCE technology relies upon the physical separation of radioactive soil fractions/grain size, how will typical point sources that have been shown to be much larger than soil grains be automatically removed from the soil stream?
- If the VORCE equipment is not designed to remove point sources and does not have radiation detection equipment, how will it be able to differentiate between a small rock and a radioactive point source of the same diameter, and how will point sources be kept from contaminating the "clean soil" that exits the equipment?
- What soil concentration criteria will the DHS use for diffuse ^{226}Ra contamination?

Mr. Fong and Mr. Dean, in reply to the first question, stated that VORCE is still appropriate for the point source ^{226}Ra contamination at HPA since the source will be removed by another nonautomated method.

Mr. Dean's reply to the second question was that a person will be standing by the "clean soil" pile with a radiation detector to screen for point sources.

The response to the third question provided by the DHS and EPA, was that the maximum allowable ^{226}Ra concentration in soil, without exception, is 5.0 pCi/g. This level is based upon the Uranium Mill Tailings Radiation Control Act (UMTCRA) guidance. Mr. Dean stated the EPA takes the position that a significant risk to human health exists, due to radon (^{222}Rn) gas emanation, when soil concentrations exceed 5.0 pCi/g ^{226}Ra . The amount of risk that is associated with ^{222}Rn emanation depends upon land use. For example, radon buildup could occur in houses built over soils that contain more than 5.0 pCi/g ^{226}Ra .

Mr. Dean said that the VORCE equipment proposed for use in the landfill to remove point and diffuse radium contamination could also be used at IR-07 and PA-18 to remove suspected diffuse ^{226}Ra contamination.

PRC was interested in studying the risk versus cost benefit for removing the soils at IR-07 and PA-18. The soil has been sampled at the two sites; a sample from IR-07 was found to contain 5.4 pCi/g

of radium. David Martinez discussed the applicability of the UMTRCA guideline of 5.0 pCi/g ²²⁶Ra criteria for radium contaminated sites at HPA. Mr. Martinez said the soil concentration levels for radium were established to ensure that soils around or below housing and other buildings would not emanate radon gas above 20 picocuries per square meter per second (pCi/M²/sec).

Mr. Martinez also discussed the analytical margin of error associated with laboratory analysis, and inquired whether the margin of error was taken into account when the 5.0 pCi/g concentration level was established. The DHS and EPA position was that the 5.0 pCi/g ²²⁶Ra guideline was inviolate.

Mr. Dean explained that if soils in PA-18 and IR-07 were capped, the soil elevated in ²²⁶Ra could potentially be left in place. He suggested that PRC and WESTDIV meet with representatives of the Navy Radiological Affairs Support Office (RASO) to get their recommendations about PA-18 and IR-07. Mr. Dean and Mr. Fong said that it is up to the Navy and PRC to propose how they will meet the cleanup goals once they are established. Mr. Fong suggested that the Navy prepare a scope of work that discusses proposed remediation methodologies for PA-18 and IR-07, and submit it to the DHS for review.

Mr. McClelland will search WESTDIV records to look for air photos of HPA taken during the 1940s. The source, amount, and extent of soils exhibiting elevated gamma count rates at PA-18 and IR-07 has not been clearly defined. Using aerial photographs, it may be possible to see if the materials in PA-18 and IR-07 are fill or native soils.

3. Surface Confirmation Radiation Survey (SCRS)

Mr. McClelland discussed required tasks that must be completed by Navy and PRC to finish the SCRS. The tasks are:

- a. WESTDIV must receive a cost estimate from Navy Public Works for removal of vegetation, and debris piles from IR-02.
- b. PRC needs to provide technical support to the Navy to assist in listing all species of flora and fauna that may be affected by the vegetation removal.
- c. WESTDIV needs to provide PRC with a scope of work outlining the above tasks.

4. Investigation Derived Waste Drum Screening

Drum screening options for ²²⁶Ra were discussed. EPA and DHS explained that it was up to the Navy to determine the appropriate method for screening the drums. Mr. Fong said he would provide unofficial technical comments on the methodology if requested. He also explained that the Navy did not need the state's approval of the screening methodology as long as radium waste was not disposed of in California. PRC will provide a technical memorandum, to the Navy for RASO review, outlining proposed drum screening methodologies.

Mr. Dean stated that the Navy only needs to meet DOT transportation regulations and requirements of the Treatment Storage and Disposal Facility (TSDF) that will be accepting ²²⁶Ra waste.

5. Other NRDL Buildings

Mr. Fong distributed a list of former NRDL buildings that DHS proposes for further radiologic investigation and sampling. The list, provided as Attachment A, outlines proposed investigation activities at each location. He also distributed a proposed schedule of activities for radiological work at HPA. The proposed schedule is provided as Attachment B.

Mr. Martinez asked DHS about the approximate 920 grams of plutonium that was used by NRDL at HPA. Mr. Fong stated that it should not be a concern because he knows that it was handled properly.

Mr. Dean mentioned that tenants at HPA were concerned with the potential for radioactive contamination and exposure at locations surrounding the buildings they occupy.

Building 506

Mr. Fong discussed the need to give special attention to Building 506 because of a reported spill of strontium-90 (⁹⁰Sr) outside the building in the former parking lot. However, since the building has been demolished, it is difficult to determine the exact location of the former spill. He said that the spill was surveyed by NRDL personnel, the contaminated paving was removed and disposed of, and the paving was replaced with new asphalt. Mr. Fong is concerned that a small piece of contaminated paving material may have fallen into the soil beneath the excavated spill area when the contaminated paving was removed. Mr. Martinez discussed reviewing air photos to determine the exact location of the parking lot.

Mr. Fong is only interested in analyzing the first 6 inches of soil for ⁹⁰Sr. Mr. Fong discussed the need for PRC to determine background for beta activity in soils at HPA. Mr. Martinez discussed the difficulty of obtaining a representative beta background activity for the soils at HPA due to the nature of the fill material. Mr. Fong proposed that background for beta activity be determined by obtaining count rates from soils collected at a statistically adequate number of sites that surround the NRDL buildings having numbers between 500 and 600 (500 series buildings). He also suggested that gamma spectroscopy and gross beta analyses be performed on the soil samples collected at the 500 series buildings. If gross beta activity is detected above the established background in any of the soil samples, then analysis for ⁹⁰Sr will be performed.

Mr. McClelland will provide a facility map that shows building locations and orientation prior to the demolition of the NRDL buildings.

Building 364

Mr. Fong is concerned that Building 364 was not adequately decontaminated for unrestricted release. Mr. McClelland said that he had heard speculation that radioactive contamination at the bottom of the sump outside the building had been covered with concrete. PRC asked Mr. McClelland to provide as-built drawings of Building 364 and the sump, constructed as a secondary containment for radioactive effluent, to determine if the bottom of the sump was resurfaced with concrete. He will search for the drawings at WESTDIV and provide them to PRC for review. Further investigation will be needed at this site.

Building 707

Mr. Fong discussed that Building 707 was formerly used as an open air storage area for drummed radioactive waste. He proposed that the area surrounding the building be surveyed at the surface for gross beta and gamma activity, and that soil samples be collected and analyzed using gamma spectroscopy.

6. New Activities

Harding Lawson Associates (HLA) detected elevated gamma activity in storm drains located beneath Cochrane Street. PRC surveyed the storm drains the following day and detected a maximum count rate of 11,000 counts per minute (cpm) using a 2-inch by 2-inch sodium iodide detector. The increased count rate may be attributed to any of the following, but none have been verified:

- Naturally occurring radionuclides contained in the aggregate, including potassium-40 and uranium daughters, used to manufacture the concrete vaults used for storm drain access.
- Naturally occurring thorium in sandblast grit that may have been used as back fill surrounding the storm drain pipes.
- Radioactive contamination

ATTACHMENT A

Proposed Radiologic Sampling Requirements for NRDL Buildings

Buildings	Functions	Sampling
351	Office	None required
351A	Electronic Lab	None required
351B/366	Office	None required
364	Hot cell, Chem lab	Survey
365	Office, film lab	None required
506	Chemistry laboratory	Bldg destroyed *
507	Biological laboratory	Bldg destroyed *
508	Health Physics Office	Bldg destroyed *
509	Animal Irradiation	Bldg destroyed *
510	Radiation Physics	Bldg destroyed *
529	Radioactive Materials storage; C-W generator	Bldg destroyed *
707 Area	Rad waste storage	Survey
815	NRDL main bldg	None required. Navy & NRC documented surveys.
816	Van de Graaff bldg	None required. Navy surveys.
820	Cyclotron	None required. Not Operated.
821	X-Ray facilities	None required. Non-contaminating source
830/831	Animal facilities	None required. Minor radioisotopes used.
Berth 2	Radwaste drums lost and recovered during barge loading	Soil sampling required

* Develop soil sampling plan including counting for 90-strontium

F. Fong

7/6/93

**Review of Current Radiological Situation at Hunters Point Annex
(HPA) - June 11, 1993**

TASK I - PARCEL A

Bldg 815: (Main NRDL Building)

Radiologically cleared and confirmed by spot surveys of NRC:RV in 1969.

In 1979 the Navy went back and conducted resurvey and decontamination.

It is a reasonable assumption to accept that no harmful radiation is present in this building.

(This building has been sold/leased to a private company who is using Bldg 815 as a record storage facility.)

Bldg. 816: (Van De Graff Building)

Radiological cleared and confirmed by spot surveys of NRC:RV in 1969.

In 1978 the Navy conducted a survey, consisting of over 100 wipes, and were liquid scintillation counted at Naval Research Laboratory, Washington, D.C. Twelve wipes were found to be positive for tritium and the highest wipe area reported was 558+130 dpm/100cm². Three wipes were positive for C-14 and the highest wipe area reported was 47+42 dpm/100 cm².

Navy was asked to sample area surrounding this building as tritium had been contaminated and decontaminated from this facility. Building parking area was also used as staging for the decontamination operation for this building. Navy's contractor (PRC) has come forward with a sampling plan.

Bldg. 820: Cyclotron Building

The cyclotron was never completely funded and the machine was never activated. No radioactive material was used in this building.

Bldg. 821 1 MEV X-Ray Building

No radioactive material was used in this building.

Bldg. 830/831 Germ Free Animal Facility

Minor amount of labelled radioactive material use only.

TASK II LANDFILL

Area contains luminous radioactive material-activated parts. PRC identified areas where radioactive materials could be surveyed from the surface, trenched and removed those items. EPA is proposing to remove all radioactive materials from this landfill, as a pilot study, with their technology from National Air and Radiation Environmental Laboratory (NAREL), Montgomery, Alabama.

At the conclusion of these decontamination operations, we hope to have a characterization of the remaining soil, from which we can state that the area is free of radiological concerns.

TASK III NRDL Buildings

NRDL had about 10-12 buildings at San Francisco Naval Shipyard and insufficient preliminary assessment disclosed poor information.

EMB are working with the Navy and the National Record Center, San Bruno, to establish buildings used by NRDL and possible sites of contamination.

Review are in placed for areas to be sampled along the docks and piers for contamination.

TASK IV Remainder of SFNS

Except for the area east of Diago Mary Clubhouse, remainder of SFNS should be free of radiological contamination. This is conditioned by not finding other radiological areas.

ATTACHMENT B

Estimated Schedule for Hunters Point Annex Radiation Investigations

I. Parcel A (Bldg 816)

Complete review of final report on tritium sampling	Aug 93
Issue DHS Record of Radiological Acceptance*	Oct 93

II. Landfill

NAREL soil characterization	Jul 93
NAREL field pilot study	Sep 93
Navy field decontamination	Mar 94
Final sampling	May 94
Evaluate results	Jul 94
Issue DHS Record of Radiological Acceptance*	Sep 94

I . NRDL Buildings

Building Assessment	Jul 93
Sampling Plan	Aug 93
Collect and analyze samples	Sep 93
Evaluate results	Oct 93
Issue DHS Record of Radiological Acceptance*	Dec 93

IV. Other SFNS

TBD

* DHS Record of Radiological Acceptance is not an accepted term by anyone or group. I used this term to indicate some official written document from DHS to show no further radiological concerns.

Please note that this schedule is my estimation and does not have any official status.

Fil Fong
DHS/EMB
6/14/93